GUIDELINES FOR PREPARING UTAH DEPARTMENT OF TRANSPORTATION RESEARCH REPORTS

Prepared For:

Utah Department of Transportation
Research Division

Submitted by:

Utah Department of Transportation
Research Division

Authored by:

Utah Department of Transportation
Research Division

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RESEARCH

UDOT

CONNECTING COMMUNITIES

Utah Department of Transportation - Research Division
4501 South 2700 West. Box 148410 - Salt Lake City, Utah 84114-8410

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TABLE OF CONTENTS

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1.0 INTRODUCTION

Reports communicate and store information. Reports should include all pertinent information and data used in the research, including all the background information, data and communications. Reports are designed to explain the research process and findings to interested audience. A poorly written report reflects on the research itself, whether the research was valuable or not.

This document includes guidelines for preparing reports for the Utah Department of Transportation (UDOT) Research and Development Division. This document can be used as a template for reports.

Submitted reports will be reviewed for content, legibility, organization, and presentation. Poorly written reports will be sent back to the author for corrections.

This document is divided in the following sections:
- Introduction
- Research Report Overview
- Typographical and Visual Features of the Research Report
- Printing and Publishing
- Final Distribution
- Additional Sources and Guidance

The report writer should contact the Research and Innovation Division for any clarification about these guidelines.

2.0 RESEARCH REPORT OVERVIEW

Reports should be clear and concise, providing sufficient explanation for the reader to understand the findings. Following are the report's required and optional elements, in placement order:
- Report Cover
- Disclaimer Notice
- Technical Report Documentation
- Table of Contents
- Executive Summary
- Body of Report
- Appendices (optional, as needed)
- References (optional, as needed)
- Bibliography (optional, as appropriate)
- Unit Conversion (optional, as needed)
- Acronyms (optional, as needed)

The following sections provide more details on the report's elements.

2.1 Report Cover

Draft and final reports should have a cover page conforming to the format in Appendix A and as shown in the cover page of this document. UDOT can provide the final report cover.

2.2. Disclaimer Notice

Every Research report should have a copy of Disclaimer Notice inside the front cover of the report as shown in this document and provided here:

 DISCLAIMER:

> "The authors alone are responsible for the preparation and accuracy of the information, data, analysis, discussions, recommendations, and conclusions presented herein. The contents do not necessarily reflect the views, opinions, endorsements, or policies of the Utah Department of Transportation of the US Department of Transportation. The Utah Department of Transportation makes no representation or warranty of any kind, and assumes no liability therefore."

2.3 Technical Documentation

The author completes on a single sheet the Technical Report Documentation Page (also referred to as FHWA Abstract Page), according to the format template in Appendix B. The Technical Report Documentation Page includes cataloging information for use by the Federal Highway Administration (FHWA) and other libraries.

2.3 Acknowledgments

The authors may wish to acknowledge others for their involvement in the execution of the research study. The acknowledgment page should be placed right after the disclaimer notice and technical documentation.

2.4 Table of Contents

The Table of Contents should be placed right after the Disclaimer Notice or Acknowledgments. The list of figures and tables should be part or immediately follow this page. The chapters should be numbered using Arabic numerals at the left of the chapter or section title, as shown in this document. Each subsection should be divided by a period (for example Chapter 1 section 1 would be: 1.1 Title of The Section). The chapter title should be in all capital letters, bold type and underlined. Section titles have the first letters capitalized and are in bold. Subsections are underlined and have only the first letter capitalized. (Use this document as an example). The Table of Contents should be linked to the document and hyperlinked in web format.

2.5 Executive Summary

The executive summary emphasizes the results and conclusions. The executive summary should briefly summarize or refer to key information described in the report
And should not be more than one or two pages long.

2.6 Body of Report

The body of the report should include at least the following sections:

- Introduction
- Research Methods
- Data Collection
- Data Evaluation/Analysis
- Conclusions
- Recommendations/Implementations

2.6.1 Introduction
In general the Introduction should include the following:

- Background information.
- Scope of the project, research, or study.
- Brief description of publications' contents.

2.6.2 Research Methods
The Research Methods section includes the subjects' detailed background, the methodologies used and other pertinent information.

2.6.3 Data Collection
This section should include information explaining how and why the data was callected for the research and where the data is available. All data should be included in one or more appendices of the report.

2.6.4 Data Evaluation
This section should include information on how and why the data was evaluated. Statistical methods employed should be listed and their use justified. Extrapolated and evaluated data should be included on tables or charts or graphs that simplify and help understand trends or other information gathered.

2.6.5 Conclusions
This section should include the researcher opinion on the research findings. The research should summarize the findings and point out the relevant data supporting the conclusions. This section should include any research limitation or challenges.

<u>2.6.6 Recommendations and Implementation</u>
The Recommendations are suggestions for action. The recommendations should include an Implementation Plan when applicable. The implementation plan should contain sufficient information to: a) provide direction on steps needed to implement the technology or products developed under this contract; and b) provide recommendation on staffing needs and resources, list individuals and organizational roles and responsibilities for implementation. This section should include recommendation for further research.

2.7 Appendices

Appendices contain extensive supplementary material that is indirectly related to the report such as raw data and technical memoranda prepared in connection with the study. Brief commentary goes in a footnote. The main text has all information that is directly related to the topic.

2.8 References

The report should have a complete citation for all sources that are referred to in the text. If the author chooses to use a style that calls for a single list of references, these should be located at the end of the report unless justified for putting it elsewhere.

2.9 Bibliography

A bibliography is optional. It may be provided if there are additional useful sources that are not included in the References section. Entries should be in a uniform style, based on a standard source such as ASCE, TRB, AASHTO and NCHRP.

2.10 Copyrighted Material

Principal Investigators (authors) are responsible for securing copyright releases when using copyrighted material. The copyright releases should be provided to the Research project manager with the final report. Copyright permissions should be noted in the report.

The author will be liable for any breach in copyright laws

2.11 Unit Conversion

Measurements in UDOT reports are in the inch-pound (U.S. Customary) system. If needed the report should include a Conversion Factors Page for any units used not conforming to UDOT standard unit of measurement.

The authors may give data conversion units in parentheses for any data reported in other systems.

2.12 Acronyms

The authors should provide a list of acronyms for any abbreviations used in the report. Acronyms usually , but not always, consist of a letter or group of letters taken from the word, name or phrase.

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3.0 TYPOGRPHICAL AND VISUAL FEATURES

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The following sections provide information and requirements about research report typographical and visual features.

3.1 Formatting

Unless otherwise specified, research reports should follow the following format:

3.2.1 Font
The required font is Times New Romans, 12-point.

3.2.2 Line Spacing
Spacing should be uniform throughout the text of the research report. Line spacing should be 1.5, with double spacing between paragraphs.

3.2.3 Graphics
Graphics include maps, tables, figures, and photographs. Graphics should be listed in the List of Figures and List of Tables. When possible, graphics should be in color, should be designed so that they are clear and legible when reproduced in black and white. Cross-hatching, varied line forms, reverses, dots and other graphic devices can be used in addition to color to make the graphic clear. Text should be in appropriate fonts and font sizes so that graphics will be clear and easily read.

Tables, graphs, charts and other graphics must be adequately labeled to provide clear information regarding the graphic as a stand-alone piece of information compatible with the word processing software it currently uses.

Graphs and pictures should be framed.

3.2.4 Page Numbering and Order
Page numbers are horizontally centered and positioned on the bottom of the page. Page numbering begins at the Executive Summary and continues to the final page, including appendices and other background material.

3.2.5 Pagination
Reports should be printed on standard white paper measuring 8.5 inches wide by 11 inches toll. Foldout pages should be used only when necessary. Before opting for foldouts, authors should

consider whether the information on a table, graph, or illustration can be formatted or designed to fit on a standard page. The project manager may choose to not accept a report that requires foldout pages.

Final reports are printed on both sides of the paper, for this reason the print master of the report may need to have blank pages interspersed to allow new chapters to begin on odd-numbered pages.

4.0 PRINTING AND PUBLISHING

The Principal Investigator should submit as many reports as required by contract (draft for review and final). All versions of the report should be submitted digitally, in a MS Word to the project manager.

The reports are reviewed for content and format. Reports should be resubmitted after being revised to the research project manager. Any revisions should follow the format outlined in this document.

5.0 FINAL DISTRIBUTION

UDOT reports are published on the UDOT Research & Development Division web site. Paper copies are made available to: Project manager, all Technical Advisory Committee (TAC) members, the Federal Highway Administration (FHWA) Utah Division Office, the State of Utah Library System, Lester Wire Library and the Research Division Library.

An announcement of the publication with a link to the online version is made available to the AASHTO Research Advisory Council (RAC), Transportation Information Services (TRIS), State of Utah Library System and other States Departments of Transportation Libraries via email.

Electronic copies (CDs) and printed copies are available upon request. Additional distribution is subject to UDOT approval.

6.0 ADDITIONAL RESOURCES

Useful resources are the NCHRP 20-45, *"Scientific Approaches to Transportation Research"*
http://onlinepubs.trb.org/onlinepubs/nchrp/cd-22/start.htm
Chapter 5—Preparing a Research Report, http://www.tfhrc.gov/qkref/qrg05.htm
The Turner-Fairbanks Highway Research Center's *Quick Reference Guide to Guidelines for Preparing FHWA Publications*. http://www.tfhrc.gov/qkref/standrd.htm and
the supplements *Guidelines for Preparing Federal Highway Administration Publications*.
http://www.fhwa.dot.gov/legsregs/directives/orders/h17104.htm

Appendix A

Report Cover

Report No. UT-0X.??(18 pt Arial, Bold)
This number will be assigned by UDOT at the
completion of the research

TITLE (28pt Arial, All caps, Bold)

Prepared For (18 pt Arial, Bold)

Utah Department of Transportation Research and Development
Division (18 Font, Arial)

Submitted By: (18 pt Arial, Bold)

??? University (18 pt Arial)
Department of Civil & Environmental Engineering

Authored By: (18 pt Arial, Bold)

Name (s)

Date (18 pt Arial, Bold)

Appendix B

Technical Report Documentation Page

1. Report No. UT- 0(X)-XX	2. Government Accession No. LEAVE BLANK	3. Recipient's Catalog No. LEAVE BLANK
4. Title and Subtitle TITLE IN ALL CAPITAL LETTERS Subtitle in initial capital letters	5. Report Date MONTH, YEAR	
	6. Performing Organization Code UTILIZE WHEN POSSIBLE	
7. Author Names In Conventional Order (i.e. John A. Doe)	8. Performing Organization Report No. UTILIZE WHEN POSSIBLE	
9. Performing Organization Name and Address Name Street Address City, State Zip Code	10. Work Unit No. PROJECT NUMBER	
	11. Contract or Grant No. CONTARCT NUMBER	
12. Sponsoring Agency Name and Address Utah Department of Transportation 4501 South 2700 West Salt Lake City, Utah 84114-8410	13. Type of Report & Period Covered FINAL, INTERIM, ETC.	
	14. Sponsoring Agency Code PROJECT ID CODE (PIC) No.	
15. Supplementary Notes Prepared in cooperation with the Utah Department of Transportation or U.S Department of Transportation, Federal Highway Administration		
16. Abstract 1. 200-250 words, A brief summary of the report		
17. Key Words Select specific and precise terms or phrases that identify principal subjects covered in the report.	18. Distribution Statement UDOT Research Division 4501 south 2700 West-box 148410 Salt Lake City, Utah 84114	23. Registrant's Seal LEAVE BLANK
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. No. of Pages Reports Page Number
		22. Price LEAVE BLANK